

I claim:

1. A planarization method of inter-layer dielectrics, comprising the steps of:
providing a semiconductor substrate already completing the basic process of
forming devices such as a field oxide, a source, a drain, and a gate thereon;
5 forming a dielectric layer used as an inter-layer dielectric on said
semiconductor substrate, lapping said dielectric layer by means of the chemical
mechanical polishing; and
forming a cap layer of high refractive index on said lapped dielectric layer.

2. The planarization method of inter-layer dielectrics as claimed in claim 1,
10 wherein said gate comprises from bottom to top a tunneling oxide layer, a
floating gate, a dielectric layer, and a control gate.

3. The planarization method of inter-layer dielectrics as claimed in claim 2,
wherein said floating gate and said control gate are composed of poly-
silicon.

15 4. The planarization method of inter-layer dielectrics as claimed in claim 1,
wherein said dielectric layer is a borophosphosilicate glass layer.

5. The planarization method of inter-layer dielectrics as claimed in claim 1,
wherein said cap layer is a silicon nitride layer capable of being transmitted
by ultra-violet light.

20 6. The planarization method of inter-layer dielectrics as claimed in claim 1,
wherein said cap layer is a silicon nitrogen-oxide layer.

7. The planarization method of inter-layer dielectrics as claimed in claim 1,
wherein said cap layer is a silicon rich oxide layer having a refractive index
not less than 1.6.

8. The planarization method of inter-layer dielectrics as claimed in claim 1, wherein said cap layer is a dielectric layer having a refractive index not less than 1.6.

9. A planarization method of inter-metal dielectrics, comprising the steps of:

5 providing a semiconductor substrate having a plurality of metal-interconnects formed thereon;

forming a dielectric layer used as an inter-metal dielectric on said substrate, lapping said dielectric layer by means of the chemical mechanical polishing; and

10 forming a cap layer of high refractive index on said lapped dielectric layer.

10. The planarization method of inter-metal dielectrics as claimed in claim 9, wherein said metal-interconnect is composed of aluminum, aluminum-copper alloy, aluminum-silicon-copper alloy, or copper.

11. The planarization method of inter-metal dielectrics as claimed in claim 9, wherein said dielectric layer is a phosphosilicate glass layer.

12. The planarization method of inter-metal dielectrics as claimed in claim 9, wherein said dielectric layer is a fluorosilicate glass layer.

13. The planarization method of inter-metal dielectrics as claimed in claim 9, wherein said dielectric layer is a low K dielectric layer.

14. The planarization method of inter-metal dielectrics as claimed in claim 9, wherein said dielectric layer is a silicon oxide layer formed by means of the plasma enhanced chemical vapor deposition.

15. The planarization method of inter-metal dielectrics as claimed in claim 9, wherein said dielectric layer is a tetraethyl-orthosilicate layer formed by

means of the plasma enhanced chemical vapor deposition:

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16. The planarization method of inter-metal dielectrics as claimed in claim 9, wherein said cap layer is a silicon nitride layer capable of being transmitted by ultra-violet light.

17. The planarization method of inter-metal dielectrics as claimed in claim 9,
wherein said cap layer is a silicon nitrogen-oxide layer.

18. The planarization method of inter-metal dielectrics as claimed in claim 9, wherein said cap layer is a silicon rich oxide layer having a refractive index not less than 1.6.

10 19. The planarization method of inter-metal dielectrics as claimed in claim 9,
wherein said cap layer is a dielectric layer having a refractive index not less
than 1.6.

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